

VERIFICATION OF A TRANSLATION

I, Tetsuo AKIYOSHI, of 5th Floor, Shintoshicenter Bldg., 24-1, Tsurumaki 1-chome, Tama-shi, Tokyo 206-0034 Japan, declare that I am well acquainted with both the Japanese and English languages, and that the attached is an accurate translation, to the best of my knowledge and ability, of the Japanese Patent Application No. 2004-029624 filed on February 5, 2004.

Signature



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[Name of Item]	Claim	1
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[Name of Item]	Specification	1
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[NAME OF DOCUMENT] SPECIFICATION

[Title of the invention]

TERMINAL APPARATUS AND RECEIVED DATA DISPLAY METHOD

[SCOPE OF CLAIMS FOR PATENT]

5 [Claim 1] A terminal apparatus comprising:

 a receiving section that receives distribution
data containing cell information, which is
information for identifying each cell;

 a data sort section that, based on said cell
10 information contained in said distribution data
received by said receiving section, and information
of an own cell, determines a priority of said
distribution data, and arranges said distribution
data in order starting with distribution data for
15 which said priority is highest; and

 a display section that displays said
distribution data in an order in which it has been
arranged by said data sort section.

 [Claim 2] The terminal apparatus according to
20 claim 1, wherein said data sort section makes a
priority of said distribution data containing said
cell information indicating the own cell the highest
priority, and among said distribution data
containing said cell information indicating other
25 cells, arranges said distribution data so that the
farther a cell is from the own cell, the lower is
its priority.

[Claim 3] The terminal apparatus according to claim 2, wherein:

said receiving section receives said distribution data containing location information which is information indicating a location for each area narrower than said cell information, and said cell information; and

said data sort section, among said distribution data containing said cell information indicating the own cell, arranges said distribution data so that the nearer a location of said location information is to its own location, the higher a priority thereof is made.

[Claim 4] The terminal apparatus according to any one of claims 1 to 3, further comprising a received signal strength measuring section that measures received signal strength in each cell from a received signal,

wherein said data sort section arranges said distribution data so that the higher the received signal strength measured by said received signal strength measuring section of a cell indicated by said cell information contained in said distribution data, the higher a priority thereof is made.

[Claim 5] The terminal apparatus according to any one of claims 1 to 4, wherein said display

section displays said distribution data for which said priority is greater than or equal to a threshold value.

[Claim 6] The terminal apparatus according to
5 any one of claims 1 to 4, further comprising a display switching section that selects a partial-display mode in which said distribution data for which said priority is greater than or equal to a threshold value is displayed by said display
10 section, or a full-display mode in which all received said distribution data is displayed by said display section,

wherein said display section displays distribution data for which said priority is greater
15 than or equal to a threshold value when said partial-display mode is selected by said display switching section, and displays all received distribution data when said full-display mode is selected by said display switching section.

[Claim 7] The terminal apparatus according to
20 any one of claims 1 to 6, further comprising a channel selection section that selects a channel based on information of the own cell, said cell information contained in said distribution data
25 received by said receiving section and channel information which is information of a channel that distributes broadcast program data,

wherein said display section first displays said broadcast program data distributed using said channel selected by said channel selection section.

[Claim 8] The terminal apparatus according to
5 claim 7, wherein said channel selection section selects a channel of said channel information contained in said distribution data containing said cell information of the own cell.

[Claim 9] A distribution server that
10 transmits said distribution data to the terminal apparatus according to any one of claims 1 to 6, said distribution server comprising:

a location information providing section that includes said cell information in content; and
15 a transmitting section that transmits said content in which said cell information has been included by said location information providing section to said terminal apparatus as said distribution data.

[Claim 10] A received data display method
20 comprising:

a step of receiving distribution data containing cell information, which is information for identifying each cell;

25 a step of, based on said cell information contained in said distribution data received by said receiving section, and information of an own cell,

determining a priority of said distribution data, and arranging said distribution data in order starting with distribution data for which said priority is highest; and

5 a step of displaying said distribution data in an order in which it has been arranged by said data sort section.

[Claim 11] The received data display method according to claim 10, wherein said data sort
10 section makes a priority of said distribution data containing said cell information indicating the own cell the highest priority, and among said distribution data containing said cell information indicating other cells, arranges said distribution
15 data so that the farther a cell is from the own cell, the lower is its priority.

[Claim 12] The received data display method according to claim 11, wherein:

20 said receiving section receives said distribution data containing location information which is information indicating a location for each area narrower than said cell information, and said cell information; and

25 said data sort section, among said distribution data containing said cell information indicating the own cell, arranges said distribution data so that the nearer a location of said location

information is to its own location, the higher a priority thereof is made.

[Claim 13] The received data display method according to any one of claims 10 to 12, further
5 comprising a step of measuring received signal strength in each cell from a received signal,

wherein said distribution data is arranged so that the higher the measured received signal strength of a cell indicated by said cell
10 information contained in said distribution data, the higher a priority thereof is made.

[Claim 14] The received data display method according to any one of claims 10 to 13, wherein said distribution data for which said priority is greater
15 than or equal to a threshold value is displayed.

[Claim 15] The received data display method according to any one of claims 10 to 13, further comprising a step of selecting a partial-display mode in which said distribution data for which said
20 priority is greater than or equal to a threshold value is displayed, or a full-display mode in which all received said distribution data is displayed,

wherein distribution data for which said priority is greater than or equal to a threshold
25 value is displayed when said partial-display mode is selected, and all received distribution data is displayed when said full-display mode is selected.

[Claim 16] The received data display method according to any one of claims 10 to 15, further comprising a step of selecting a channel based on information of the own cell, said cell information
5 contained in said received distribution data and channel information which is information of a channel that distributes broadcast program data, wherein said broadcast program data distributed using selected said channel is
10 displayed first.

[Claim 17] The received data display method according to claim 16, wherein a channel of said channel information contained in said distribution data containing said cell information of the own
15 cell is selected.

[Detailed description of the Invention]

[Technical Field of the Invention]

[0001]

The present invention relates to a terminal
20 apparatus and received data display method, and relates, for example, to a terminal apparatus and received data display method used in a service whereby advertisements and suchlike distribution data are distributed to a terminal apparatus from
25 a distribution server.

[Prior Art]

[0002]

In third-generation mobile communication systems, a broadcasting service is known whereby distribution data is simultaneously transmitted to a plurality of mobile terminals (see Patent Document 1, for example).

[0003]

FIG.24 is a block diagram showing the configuration of a communication system in a conventional broadcasting system in which distribution data is transmitted. FIG.24, location information transmitting apparatus 10 is equipped with transmitting/receiving section 11, control section 12, storage section 13, and location acquisition section 14.

[0004]

Transmitting/receiving section 11 is used when transmitting/receiving movement-related information such as location information and location information dependent message information. Control section 12 includes a clock, CPU, and so forth, and performs overall control of the various sections. In storage section 13, movement-related information is stored associated with transmission conditions.

[0005]

In location acquisition section 14, location measurement apparatus 15 receives a plurality of

electromagnetic waves transmitted from a plurality of satellites or the like, calculates the mobile location of mobile device 16 from the received power values of these electromagnetic waves, creates
5 location information from this calculated data, and passes this location information to storage section 13. Mobile terminal 17 receives desired movement-related information based on the transmission conditions from location information
10 transmitting apparatus 10.

[Patent Document 1] Japanese Patent Application Unexamined Publication No.2002-165264

[Problems to be Solved by the Invention]

[0006]

15 However, with a conventional terminal apparatus and received data display method, it is necessary for distribution data to be edited for each mobile device individually on the distribution end based on the locations of mobile devices
20 measured on the distribution end, and the associated costs are a problem. Also, with a conventional terminal apparatus and received data display method, if the distribution end distributes distribution data without performing editing on an individual
25 basis in order to reduce costs, there is a problem in that a user who views distribution data received by a mobile device must search for necessary

information among all the received distribution data, and thus necessary information cannot be found speedily.

[0007]

5 In view of the above circumstances, the present invention has been made, and an object of the present invention is to provide a terminal apparatus and received data display method that enable costs to be reduced and necessary information to be found
10 speedily by editing distribution data in the terminal apparatus and not editing distribution data on the distribution end.

[Means for Solving the Problems]

[0008]

15 A terminal apparatus of the present invention adopts a configuration including a receiving section that receives distribution data containing cell information, which is information for identifying each cell; a data sort section that,
20 based on the cell information contained in the distribution data received by the receiving section, and information of an own cell, determines a priority of the distribution data, and arranges the distribution data in order starting with
25 distribution data for which the priority is highest; and a display section that displays the distribution data in an order in which it has been arranged by

the data sort section.

[0009]

According to this configuration, by arranging and displaying distribution data in order starting with distribution data for which the priority is highest based on cell information and information of the own cell, distribution data does not have to be edited on the distribution end, enabling costs to be reduced and a viewer to find necessary information speedily.

[0010]

The terminal apparatus of the present invention according to the above configuration adopts a configuration wherein the data sort section makes a priority of the distribution data containing the cell information indicating the own cell the highest priority, and among the distribution data containing the cell information indicating other cells, arranges the distribution data so that the farther a cell is from the own cell, the lower is its priority.

[0011]

According to this configuration, in addition to the aforementioned effects, distribution data in the own cell is displayed as highest-priority information, enabling a viewer to find distribution data in the cell with which communication is

performed by use of the terminal apparatus speedily.

[0012]

The terminal apparatus of the present invention according to the above configuration
5 adopts a configuration wherein the receiving section receives the distribution data containing location information which is information indicating a location for each area narrower than the cell information, and the cell information; and
10 the data sort section, among the distribution data containing the cell information indicating the own cell, arranges the distribution data so that the nearer a location of the location information is to its own location, the higher a priority thereof is
15 made.

[0013]

According to this configuration, in addition to the aforementioned effects, received distribution data is arranged for each cell
20 according to the priority, and regarding distribution data with the highest priority, distribution data is arranged according to the priority based on location information of an area narrower than the cell and the own location, so that
25 priorities can be assigned with greater precision, enabling a viewer to find necessary information more speedily.

[0014]

The terminal apparatus of the present invention according to the above configuration adopts a configuration further comprising a received signal strength measuring section that
5 measures received signal strength in each cell from a received signal, wherein the data sort section arranges the distribution data so that the higher the received signal strength measured by the
10 received signal strength measuring section of a cell indicated by the cell information contained in the distribution data, the higher a priority thereof is made.

[0015]

15 According to this configuration, in addition to the aforementioned effects, distribution data can be arranged using received signal strength without comparing cell information with information of the own cell, rendering processing for grasping
20 the own cell and processing for comparing cell information with information of the own cell, and thereby enabling the processing load to be reduced.

[0016]

The terminal apparatus of the present
25 invention according to the above configuration adopts a configuration wherein the display section displays the distribution data for which the

priority is greater than or equal to a threshold value.

[0017]

According to this configuration, in addition
5 to the aforementioned effects, unnecessary distribution data is not displayed, enabling a viewer to find necessary distribution data speedily.

[0018]

10 The terminal apparatus of the present invention according to the above configuration adopts a configuration further comprising a display switching section that selects a partial-display mode in which the distribution data for which the
15 priority is greater than or equal to a threshold value is displayed by the display section, or a full-display mode in which all received the distribution data is displayed by the display section, wherein the display section displays
20 distribution data for which the priority is greater than or equal to a threshold value when the partial-display mode is selected by the display switching section, and displays all received distribution data when the full-display mode is
25 selected by the display switching section.

[0019]

According to this configuration, in addition

to the aforementioned effects, the partial-display mode and the full-display mode can be selected, switched and displayed, so that a user wishing to view only high-priority distribution data can find
5 necessary information speedily by not having unnecessary distribution data displayed, and a user can also view all distribution data when wishing to do so, thus enabling distribution data to be displayed in an easy-to-view manner.

10 [0020]

The terminal apparatus of the present invention according to the above configuration adopts a configuration further comprising a channel selection section that selects a channel based on
15 information of the own cell, the cell information contained in the distribution data received by the receiving section and channel information which is information of a channel that distributes broadcast program data, wherein the display section first
20 displays the broadcast program data distributed using the channel selected by the channel selection section.

[0021]

According to this configuration, in addition
25 to the aforementioned effects, a broadcast program distributed using the channel selected based on information of the own cell, cell information and

channel information is first displayed, enabling a state in which no broadcast program is displayed to be eliminated during the period until the user selects a broadcast program.

5 [0022]

The terminal apparatus of the present invention according to the above configuration adopts a configuration wherein the channel selection section selects a channel of the channel information contained in the distribution data containing the cell information of the own cell.

[0023]

According to this configuration, in addition to the aforementioned effects, a broadcast program distributed in a channel of channel information contained in distribution data containing cell information of the own cell is displayed first, enabling the user to view the most necessary broadcast program speedily.

20 [0024]

A distribution server of the present invention is a distribution server that transmits the distribution data to any one of the above described terminal apparatus, and the distribution server adopts a configuration a location information providing section that includes the cell information in content; and a transmitting section

that transmits the content in which the cell information has been included by the location information providing section to the terminal apparatus as the distribution data.

5 [0025]

According to this configuration, the terminal apparatus on the receiving end can arrange distribution data only by transmitting the content and position information to be associated with each other, so that distribution data does not have to be edited on the distribution end, enabling costs to be reduced.

[0026]

A received data display method of the present invention includes a step of receiving distribution data containing cell information, which is information for identifying each cell; a step of, based on the cell information contained in the distribution data received by the receiving section, and information of an own cell, determining a priority of the distribution data, and arranging the distribution data in order starting with distribution data for which the priority is highest; and a step of displaying the distribution data in an order in which it has been arranged by the data sort section.

[0027]

According to this method, by arranging and displaying distribution data in order starting with distribution data for which the priority is highest based on cell information and information of the own cell, distribution data does not have to be edited on the distribution end, enabling costs to be reduced and a viewer to find necessary information speedily.

[0028]

10 In the received data display method of the present invention according to the above method, the data sort section makes a priority of the distribution data containing the cell information indicating the own cell the highest priority, and
15 among the distribution data containing the cell information indicating other cells, arranges the distribution data so that the farther a cell is from the own cell, the lower is its priority.

[0029]

20 According to this method, in addition to the aforementioned effects, distribution data in the own cell is displayed as highest-priority information, enabling a viewer to find distribution data in the cell with which communication is
25 performed by use of the terminal apparatus speedily.

[0030]

In the received data display method of the

present invention according to the above method, the receiving section receives the distribution data containing location information which is information indicating a location for each area
5 narrower than the cell information, and the cell information; and the data sort section, among the distribution data containing the cell information indicating the own cell, arranges the distribution data so that the nearer a location of the location
10 information is to its own location, the higher a priority thereof is made.

[0031]

According to this method, in addition to the aforementioned effects, received distribution data
15 is arranged for each cell according to the priority, and regarding distribution data with the highest priority, distribution data is arranged according to the priority based on location information of an area narrower than the cell and the own location,
20 so that priorities can be assigned with greater precision, enabling a viewer to find necessary information more speedily.

[0032]

The received data display method of the present
25 invention according to the above method further includes a step of measuring received signal strength in each cell from a received signal,

wherein the distribution data is arranged so that the higher the measured received signal strength of a cell indicated by the cell information contained in the distribution data, the higher a priority thereof is made.

[0033]

According to this method, in addition to the aforementioned effects, distribution data can be arranged using received signal strength without comparing cell information with information of the own cell, rendering processing for grasping the own cell and processing for comparing cell information with information of the own cell, and thereby enabling the processing load to be reduced.

[0034]

In the received data display method of the present invention according to the above method, the distribution data for which the priority is greater than or equal to a threshold value is displayed.

[0035]

According to this method, in addition to the aforementioned effects, unnecessary distribution data is not displayed, enabling a viewer to find necessary distribution data speedily.

[0036]

The received data display method of the present invention according to the above method further

includes a step of selecting a partial-display mode in which the distribution data for which the priority is greater than or equal to a threshold value is displayed, or a full-display mode in which
5 all received the distribution data is displayed, wherein distribution data for which the priority is greater than or equal to a threshold value is displayed when the partial-display mode is selected, and all received distribution data is displayed when
10 the full-display mode is selected.

[0037]

According to this method, in addition to the aforementioned effects, the partial-display mode and the full-display mode can be selected, switched
15 and displayed, so that a user wishing to view only high-priority distribution data can find necessary information speedily by not having unnecessary distribution data displayed, and a user can also view all distribution data when wishing to do so,
20 thus enabling distribution data to be displayed in an easy-to-view manner.

[0038]

The received data display method of the present invention according to the above method further
25 includes a step of selecting a channel based on information of the own cell, the cell information contained in the received distribution data and

channel information which is information of a channel that distributes broadcast program data, wherein the broadcast program data distributed using selected the channel is displayed first.

5 [0039]

According to this method, in addition to the aforementioned effects, a broadcast program distributed using the channel selected based on information of the own cell, cell information and
10 channel information is first displayed, enabling a state in which no broadcast program is displayed to be eliminated during the period until the user selects a broadcast program.

[0040]

15 In the received data display method of the present invention according to the above method, a channel of the channel information contained in the distribution data containing the cell information of the own cell is selected.

20 [0041]

According to this method, in addition to the aforementioned effects, a broadcast program distributed in a channel of channel information contained in distribution data containing cell
25 information of the own cell is displayed first, enabling the user to view the most necessary broadcast program speedily.

[Effects of the Invention]

[0042]

According to the present invention, distribution data can be edited in a terminal apparatus, and not edited on the distribution end, enabling costs to be reduced and necessary data to be found speedily.

[Embodiments of the Invention]

[0043]

The outline of the present invention is to determine, based on cell information (cell ID) contained in distribution data and information of an own cell, a priority of the distribution data and to arrange and display the distribution data in order starting with distribution data for which the priority is highest.

[0044]

Now, embodiments of the present invention will be described in detail with reference to the accompanying drawings.

[0045]

(Embodiment 1)

FIG.1 is a block diagram showing the configuration of terminal apparatus 100 according to Embodiment 1 of the present invention.

[0046]

Radio receiving section 102 down-converts a

received signal received by antenna 101 from radio frequency to baseband frequency, and outputs the resulting signal to data receiving section 105 and control data receiving section 103.

5 [0047]

Control data receiving section 103 extracts all control information other than application data from a received signal input from radio receiving section 102, and outputs this control information
10 to cell ID extraction section 104.

[0048]

Cell ID extraction section 104 extracts, from control information input from control data receiving section 103, the cell ID (cell
15 information) of its own cell, in which terminal apparatus 100 is currently performing communication, and outputs cell ID information--that is, information as to the extracted cell ID--to data sort section 106. Here, the cell ID is an ID
20 identifying the cell, and is represented numerically so that a different numeric value is indicated for each cell.

[0049]

Data receiving section 105 extracts
25 distribution data from a received signal input from radio receiving section 102, and outputs this data to data sort section 106. The distribution data

extracted by data receiving section 105 is program selection menu information for selecting a broadcast program.

[0050]

5 Data sort section 106 compares the cell ID contained in the distribution data input from data receiving section 105 with the cell ID input from cell ID extraction section 104. Then, based on the result of the comparison, data sort section 106
10 arranges the distribution data input from data receiving section 105, and outputs this data to data format section 107. Specifically, whether or not there is distribution data containing the cell ID of the own cell in which communication is currently
15 being performed is determined, the difference between the cell ID contained in the distribution data and the cell ID of the own cell is found, the found difference is compared with a threshold value, the priority of each distribution data is determined,
20 and distribution data is arranged accordingly. When only distribution data containing the cell ID of the own cell is arranged, threshold value information is not necessary.

[0051]

25 Data format section 107 converts distribution data input from data sort section 106 to a predetermined format for display, and outputs this

converted data to display section 108.

[0052]

Display section 108 displays distribution data input from data format section 107.

5 [0053]

The configuration of distribution server 200 will now be described using FIG.2. FIG.2 is a block diagram showing the configuration of distribution server 200.

10 [0054]

A content reading section 201 reads content (multimedia data such as text, image, and voice data), and outputs this data to cell ID providing section 203. Here, content includes a plurality of
15 arbitrary information associated with a latitude and longitude constituting location information, comprising, for example, information indicating correspondence between a store and the latitude and longitude of the store, or information indicating
20 correspondence between regional news and the latitude and longitude of that region.

[0055]

A geographical information storage section 202 stores a table holding conversion information
25 indicating correspondence between cell IDs and a range of latitudes and longitudes, or a formula enabling a cell ID to be found from a latitude and

longitude.

[0056]

Cell ID providing section 203 references latitude information and longitude information from content input from content reading section 201. Then, using the referenced latitude information and longitude information, cell ID providing section 203 selects a cell ID by referencing conversion information stored in geographical information storage section 202, or performing calculation using a formula. Cell ID providing section 203 then includes a cell ID selected for the contents of each content in the relevant content, and outputs this to transmitting section 204.

15 [0057]

Transmitting section 204 transmits content input from cell ID providing section 203 as distribution data.

[0058]

20 The procedure up to reception by terminal apparatus 100 of distribution data transmitted from distribution server 200 will now be described using FIG.3 and FIG.4.

[0059]

25 In FIG.3, Distribution server 200 outputs distribution data to core network 301. Distribution data comprises, for example, news

information #401 and restaurant information #402, as shown in FIG.4. In news information #401, '0x0D' cell ID information #401a is included in the 'Tokyo Gakuen gets through to Koshien' program selection menu information in the first line, '0x0D' cell ID information #401b is included in the 'Interview with Tokyo Governor' program selection menu information in the second line, '0x0A', '0x0B', and '0x0C' cell ID information #401c is included in the 'Yokohama Gakuin gets through to Koshien' program selection menu information in the third line, '0x0A', '0x0B', and '0x0C' cell ID information #401d is included in the 'Interview with Prefectural Governor' program selection menu information in the fourth line, and all cell ID information #401e indicated by '*' is included in the 'Lower House Vote News Flash' program selection menu information in the fifth line. Thus, the various items of program selection menu information include cell ID information.

[0060]

A cell ID is expressed as a hexadecimal number, with '0x0A' representing '10' when converted to decimal, '0x0B' representing '11', and '0x0C' representing '12'. It is therefore possible to perform hexadecimal or decimal subtraction between cell IDs, and determine that the cell for which the subtraction result is smallest between the cell ID

of the own cell and the cell IDs of other cells is the other cell nearest the own cell. The present invention is not limited to expression of cell IDs as hexadecimal numbers, and it is possible to use
5 any numeric notation such as binary, for example, to represent a cell ID. The same applies to restaurant information #402 as to news information #401, and therefore a description relating to restaurant information #402 is omitted here.

10 [0061]

Next, the distribution data in FIG.4 distributed from distribution server 200 arrives at network control apparatuses 302a and 302b via core network 301. Network control apparatuses 302a and
15 302b can transmit distribution data to a plurality of base station apparatuses, with network control apparatus 302a transmitting distribution data to base station apparatus 303a of cell #310 (for example, the Shonan area), and network control
20 apparatus 302b transmitting distribution data to base station apparatus 303b of cell #311 (for example, the Yokohama area), base station apparatus 303c of cell #312 (for example, the Kawasaki area), and base station apparatus 303d of cell #313 (for
25 example, the Shinagawa area). Each base station apparatus then transmits the distribution data to a terminal apparatus 100 performing communication

within the cell.

[0062]

The operation of terminal apparatus 100 that receives distribution data will now be described using FIG.5 through FIG.7. FIG.5 is a flowchart showing the operation of terminal apparatus 100, and FIG.6 and FIG.7 are drawings showing distribution data distributed for display on terminal apparatus 100.

10 [0063]

First, terminal apparatus 100 starts a receive operation, and in the case of distribution data such as that shown in FIG.4, for example, reads one item of the restaurant information distribution data shown in FIG.6 (step ST501), and data receiving section 105 extracts the distribution data. In this case, distribution data is arranged in an order determined arbitrarily by the distribution data creator. At the same time, control data receiving section 103 extracts control information. Then cell ID extraction section 104 extracts the cell ID of the own cell in which it is itself performing communication, and obtains the cell ID (step ST502).

[0064]

25 Next, data sort section 106 compares the cell ID contained in the distribution data with the extracted cell ID, and determines whether or not

they are the same cell ID (step ST503). If they are the same cell ID, data sort section 106 makes the priority of the distribution data containing the same cell ID 'high' (step ST504). On the other hand, 5 if they are not the same cell ID, data sort section 106 determines whether or not the difference between the cell ID contained in the distribution data and the extracted cell ID is less than or equal to a threshold value (step ST505). If the difference 10 between the cell ID contained in the distribution data and the extracted cell ID is less than or equal to the threshold value, data sort section 106 makes the priority of the distribution data containing the cell ID that is less than or equal to the threshold 15 value 'medium' (step ST506). If the difference between the cell ID contained in the distribution data and the extracted cell ID is not less than or equal to the threshold value, data sort section 106 makes the priority of the distribution data 20 containing the cell ID that is not less than or equal to the threshold value 'low' (step ST507).

[0065]

Next, data sort section 106 arranges the distribution data based on the respective 25 priorities (step ST508). For example, if terminal apparatus 100 performing communication in Yokohama area cell #311 with a cell ID of '0x0B' receives

restaurant information #401 in FIG.6, data sort section 106 selects program selection menu information #604 containing the '0x0B' cell ID and makes its priority 'high', and puts program selection menu information #604 in top place, as shown in FIG.7. Also, as a result of performing subtraction between cell IDs, data sort section 106 places program selection menu information #605 of Shonan area cell #310 with a cell ID of '0x0A', and program selection menu information #603 of Kawasaki area cell #312 with a cell ID of '0x0C', the nearest to Yokohama area cell #311, after program selection menu information #604. Also, data sort section 106 puts program selection menu information #602 of Shinagawa area cell #313 with a cell ID of '0x0D', the nearest to Yokohama area cell #311 after Shonan area cell #310 and Kawasaki area cell #312, in next place after program selection menu information #603. Furthermore, data sort section 106 puts program selection menu information #601 of an Odaiba area cell (not shown) with a cell ID of '0x0E', the farthest from Yokohama area cell #311, in next place after program selection menu information #602.

[0066]

Data format section 107 then converts the distribution data to a predetermined format. For example, when terminal apparatus 100 has arranged

distribution data as shown in FIG.8, the distribution data in FIG.7 is converted to the HTML format shown in FIG.8 that can be displayed by a general-purpose WWW browser. Next, display
5 section 108 displays the distribution data (step ST509). Terminal apparatus 100 then determines whether or not distribution data reception processing is to be terminated (step ST510). If reception processing is not to be terminated, the
10 processing in step ST501 through step ST509 is repeated. On the other hand, if reception processing is to be terminated, distribution data reception is not performed.

[0067]

15 FIG.9 is a drawing showing the display on display section 108 of terminal apparatus 100 when terminal apparatus 100 is performing communication in cell #311, when cell #311 is a Yokohama area cell, for example. Distribution data news information
20 #401, in which distribution data arranged as shown in FIG.7 has been converted as shown in FIG.8, is displayed as news information #901 as shown in FIG.9, and distribution data restaurant information #402, in which distribution data arranged as shown in
25 FIG.7 has been converted as shown in FIG.8, is displayed as restaurant information #902 as shown in FIG.9. As shown in FIG.9, on terminal apparatus

100 performing communication in cell #311, Yokohama related news information and Yokohama restaurant information are displayed preferentially as high-priority information.

5 [0068]

FIG.10 is a drawing showing the display on display section 108 of terminal apparatus 100 when terminal apparatus 100 is performing communication in cell #313, when cell #313 is a Shinagawa area cell, 10 for example. In this case, distribution data news information #401 is displayed as news information #1001 as shown in FIG.10, and distribution data restaurant information #402 is displayed as restaurant information #1002 as shown in FIG.10. 15 As shown in FIG.10, in terminal apparatus 100 performing communication in cell #313, Shinagawa related news information and Shinagawa restaurant information are displayed preferentially as high-priority information. Any method can be used 20 to perform preferential display, such as displaying items of information from top to bottom in high-to-low priority order, or displaying only high-priority information.

[0069]

25 Also, by providing a switching section such as a switch in display section 108 in FIG.1, it is also possible for the priority of 'low' priority news

information and restaurant information or 'medium' priority news information and restaurant information, and the priority of 'high' priority news information and restaurant information, to be
5 changed, and 'low' priority news information and restaurant information, or 'medium' priority news information and restaurant information, to be displayed as high-priority information. That is to say, by operating the switching section, a user can
10 display news information and restaurant information associated with the cell ID of any cell among cell #310 through cell #313 as high-priority information, irrespective of the cell in which terminal apparatus 100 is performing communication.

15 [0070]

Thus, according to Embodiment 1, by arranging and displaying distribution data based on the results of comparison between the cell ID of the own cell and cell IDs contained in various distribution
20 data, distribution data can be edited in a terminal apparatus, and not edited on the distribution end, enabling costs to be reduced. Also, according to Embodiment 1, a terminal apparatus arranges distribution data automatically using cell IDs,
25 enabling a user to find the most necessary information speedily. Furthermore, according to Embodiment 1, when distribution data associated

with the cell ID of any cell among cell #310 through cell #313 is displayed as high-priority information by means of user selection, the user can speedily find distribution data associated with any location
5 other than the location where the user is currently performing communication.

[0071]

(Embodiment 2)

FIG.11 is a block diagram showing the
10 configuration of a terminal apparatus 1100 according to Embodiment 2 of the present invention.

[0072]

Terminal apparatus 1100 according to Embodiment 2 has data sort section 1101 as shown in
15 FIG.11 instead of data sort section 106 in terminal apparatus 100 according to Embodiment 1 shown in FIG.1. Parts in FIG.11 constituting the same configuration elements as in FIG.1 are assigned the same codes as in FIG.1, and descriptions thereof are
20 omitted. The configuration of a distribution server according to Embodiment 2 is identical to that in FIG.2, and therefore a description thereof is also omitted here.

[0073]

25 Data sort section 1101 compares the cell ID contained in distribution data with a cell ID input from cell ID extraction section 104. Then, based

on the result of the comparison and the latitude and longitude at which terminal apparatus 1100 is performing communication measured using GPS or the like, data sort section 1101 arranges the

5 distribution data input from data receiving section 105, and outputs this data to a data format section 107. Specifically, whether or not a cell ID identical to a cell ID contained in the distribution data is present in the cell IDs input from cell ID

10 extraction section 104 is determined, the difference between the cell ID contained in the distribution data and the cell ID input from cell ID extraction section 104 is found, the found difference is compared with a threshold value, the

15 priority of each distribution data is determined, and the various distribution data are arranged into predetermined groups designated 'high', 'medium', and 'low' priority. Data sort section 1101 then compares the latitude and longitude of each

20 distribution data with the latitude and longitude at which terminal apparatus 1100 is performing communication with respect to each group, and arranges distribution data within each group based on the comparison result. When only distribution

25 data containing the cell ID of the own cell is arranged by data sort section 1101, threshold value information is not necessary. The procedure up to

reception by terminal apparatus 1100 of distribution data distributed from distribution server 200, and the operation of terminal apparatus 1100, are the same as in FIG.3 and FIG.5, and
5 therefore a description thereof is omitted here.
[0074]

FIG.12 is a drawing showing distribution data distributed from distribution server 200. Distribution data comprises, for example, news
10 information #1201 and restaurant information #1202, as shown in FIG.12. Restaurant information #1202 includes latitude information #1203, which is information as to latitude, and longitude information #1204, which is information as to
15 longitude. The distribution data shown in FIG.12 is distributed from distribution server 200 to terminal apparatus 1100.
[0075]

FIG.13 and FIG.14 are drawings showing
20 distribution data displayed on display section 108 of terminal apparatus 1100. FIG.14 shows distribution data displayed on terminal apparatus 1100 when terminal apparatus 1100 is performing communication at north latitude (N) '35N27' and east
25 longitude (E) '139E37', and FIG.15 shows distribution data displayed on terminal apparatus 1100 when terminal apparatus 1100 is performing

communication at north latitude (N) '35N28' and east longitude (E) '139E38'. In FIG.13 and FIG.14, distribution data news information #1201 shown in FIG.13 is displayed as news information #1301 and #1401, and distribution data restaurant information #1202 shown in FIG.12 is displayed as restaurant information #1302 and #1402. As shown in FIG.13, when cell #311 is a Yokohama area cell, on terminal apparatus 1100 performing communication at north latitude (N) '35N27' and east longitude (E) '139E37' in cell #311, Yokohama related news information #1301 and Yokohama restaurant information #1302 are displayed preferentially as high-priority information, and in preferentially displayed Yokohama restaurant information #1302, a restaurant at north latitude (N) '35N27' and east longitude (E) '139E37' is further displayed preferentially as high-priority information. Also, as shown in FIG.14, on terminal apparatus 1100 performing communication at north latitude (N) '35N28' and east longitude (E) '139E38' in cell #311, Yokohama related news information #1401 and Yokohama restaurant information #1402 are displayed preferentially as high-priority information, and in preferentially displayed Yokohama restaurant information #1402, a restaurant at north latitude (N) '35N28' and east longitude (E) '139E38' is

further displayed preferentially as high-priority information.

[0076]

Thus, according to Embodiment 2, in addition
5 to providing the effects of Embodiment 1 described above, priorities can be assigned with greater precision by using latitudes and longitudes, enabling a user to find necessary information still more speedily.

10 [0077]

In Embodiment 2, the use of latitude and longitude has been assumed as location information employed when distribution data is arranged by data sort section 1101, but this is not a limitation, and
15 it is possible to use any location information, such as a zip code or the like, on condition that this location information is the same as the location information associated with content information.

[0078]

20 (Embodiment 3)

FIG.15 is a block diagram showing the configuration of a terminal apparatus 1500 according to Embodiment 3 of the present invention.

[0079]

25 In terminal apparatus 1500 according to Embodiment 3, as shown in FIG.15, a transmission status monitoring section 1501 and a cell ID storage

section 1503 are added to the configuration of terminal apparatus 100 according to Embodiment 1 shown in FIG.2, a cell ID extraction section 1502 is provided instead of cell ID extraction section 104, and a data sort section 1504 is provided instead of data sort section 106. Parts in FIG.15 constituting the same configuration elements as in FIG.1 are assigned the same codes as in FIG.1, and descriptions thereof are omitted. The configuration of a distribution server according to Embodiment 3 is identical to that in FIG.2, and therefore a description thereof is also omitted here.

[0080]

Transmission status monitoring section 1501 measures the received signal strength of a received signal input from control data receiving section 103, and outputs the result of the measurement to cell ID storage section 1503.

[0081]

Cell ID extraction section 1502 extracts, from control information input from control data receiving section 103, all cell IDs for which reception is currently possible containing the cell ID of the own cell in which terminal apparatus 1500 is currently performing communication, and outputs cell ID information--that is, information on the

extracted cell IDs--to cell ID storage section 1503.

[0082]

Using the extracted cell ID information input from cell ID extraction section 1502 and the measurement result input from transmission status monitoring section 1501, cell ID storage section 1503 associates cell IDs with received signal strength and creates data sort information, and also stores a table that holds the data sort information.

10 [0083]

Using cell ID information contained in distribution data input from the data receiving section, data sort section 1504 references the data sort information stored in cell ID storage section 1503, and arranges the distribution data so that distribution data associated with a cell ID for which the received signal strength is high has a proportionally higher priority.

[0084]

20 The operation of terminal apparatus 1500 will now be described using FIG.16 and FIG.17. FIG.16 is a flowchart showing the operation of terminal apparatus 1500, and FIG.17 is a drawing showing data sort information.

25 [0085]

First, terminal apparatus 1500 starts a receive operation, and in the case of distribution

data such as that shown in FIG.4, for example, reads one item of the restaurant information distribution data shown in FIG.6 (step ST1601), and data receiving section 105 extracts the distribution data. At the same time, control data receiving section 103 extracts control information. Then cell ID extraction section 1502 extracts the cell IDs of all cells for which reception is currently possible containing the cell ID of the own cell in which the terminal apparatus itself is currently performing communication, and transmission status monitoring section 1501 measures the received signal strength and monitors the transmission status (step ST1602).

15 [0086]

Next, cell ID storage section 1503 updates the cell ID correspondence table constituting data sort information (step ST1603). The cell ID correspondence table is as shown in FIG.17, for example, and cell IDs '0x0A', '0x0B', and '0x0C' extracted by cell ID extraction section 1502, and the received signal strength of each cell ID, are updated. In FIG.17, the received signal strength of cell ID '0x0B' is 38 dB, the received signal strength of cell ID '0x0A' is 36 dB, and the received signal strength of cell ID '0x0C' is 35 dB. In this case, since cell ID '0x0B' has the highest received

signal strength, terminal apparatus 1500 performs communication using the cell with cell ID '0x0B'. The cell with cell ID '0x0A' and the cell with cell ID '0x0C' are cells adjacent to the cell with cell ID '0x0B', and terminal apparatus 1500 simultaneously receives signals from the cell with cell ID '0x0A' and the cell with cell ID '0x0C'.
[0087]

Then data sort section 1504 arranges the distribution data by assigning priorities so that distribution data associated with a cell ID for which the received signal strength is high has a proportionally higher priority (step ST1604). Data format section 107 then converts the distribution data to a predetermined format for display, and display section 108 displays the distribution data (step ST1605). Any method can be used when distribution data is displayed, such as displaying items of information from top to bottom in high-to-low priority order, as shown in FIG.9 and FIG.10, or displaying only high-priority information.
[0088]

Terminal apparatus 1500 then determines whether or not distribution data reception processing is to be terminated (step ST1606). If reception processing is not to be terminated, the

processing in step ST1601 through step ST1605 is repeated. On the other hand, if reception processing is to be terminated, distribution data reception is not performed.

5 [0089]

Thus, according to Embodiment 3, by referencing data sort information stored with the correspondence between the cell ID of a cell in which communication is currently being performed and received signal strength indicated, and displaying
10 distribution data accordingly, distribution data can be edited in a terminal apparatus, and not edited on the distribution end, enabling costs to be reduced. Also, according to Embodiment 3, a
15 terminal apparatus arranges and displays distribution data automatically using cell IDs and received signal strength, enabling a user to find the most necessary distribution data speedily. Furthermore, according to Embodiment 3,
20 distribution data is arranged using received signal strength, without comparing a cell ID extracted by cell ID extraction section 1502 with a cell ID associated with distribution data, rendering processing for comparing the cell ID of the own cell
25 with a cell ID of cell ID information contained in distribution data unnecessary, and thereby enabling the processing load to be reduced.

[0090]

In Embodiment 3, data sort information has been assumed to indicate the correspondence between a cell ID and received signal strength, but this is by no means limiting, and it is possible to use data sort information indicating the correspondence between any parameter and a cell ID, such as the correspondence between a cell ID and the transmission error rate.

10 [0091]

(Embodiment 4)

FIG.18 is a block diagram showing the configuration of a terminal apparatus 1800 according to Embodiment 4 of the present invention.

15 [0092]

In terminal apparatus 1800 according to Embodiment 4, as shown in FIG.18, a display switching section 1801 is added to the configuration of terminal apparatus 100 according to Embodiment 1 shown in FIG.1. Parts in FIG.18 constituting the same configuration elements as in FIG.1 are assigned the same codes as in FIG.1, and descriptions thereof are omitted. The configuration of a distribution server according to Embodiment 4 is identical to that in FIG.2, and therefore a description thereof is also omitted here.

[0093]

Display switching section 1801 is a switch, for example, and controls display section 108 by means of a user switching operation so as to switch display between a full-display mode in which all the distribution data input from data format section 107 is displayed, and a partial-display mode in which only distribution data whose priority is greater than or equal to a threshold value is displayed. In partial-display mode, display switching section 1801 is not limited to performing control so that distribution data whose priority is greater than or equal to a threshold value is displayed, but can also perform control so that only distribution data with the highest priority is displayed.

[0094]

Based on display switching section 1801 control, display section 108 performs display switching between display of all the distribution data input from data format section 107, and display of only distribution data whose priority is greater than or equal to a threshold value among the distribution data input from data format section 107 (for example, 'high' priority distribution data and 'medium' priority distribution data). When partial-display mode is a mode in which only distribution data with the highest priority is displayed, display section 108 switches between

display of all the distribution data input from data
format section 107, and display of only distribution
data whose priority is greater than or equal to a
threshold value among the distribution data input
5 from data format section 107 (for example, 'high'
priority distribution data), based on display
switching section 1801 control.

[0095]

FIG.19 is a drawing showing a display on display
10 section 108 in partial-display mode, and FIG.21 is
a drawing showing a display on display section 108
in full-display mode. If, for example, the user
wishes to view all the received distribution data
while viewing a display in which only part of the
15 received distribution data is displayed, as shown
in FIG.19, the user can cause all the received
distribution data to be displayed as shown in FIG.20
by operating display switching section 1801. Apart
from the switchover between displaying all the
20 distribution data or part of the distribution data
received in step ST509 in FIG.5, the operation of
terminal apparatus 1800 is the same as in FIG.5, and
therefore a description thereof is omitted here.

[0096]

25 Thus, according to Embodiment 4, in addition
to providing the effects of Embodiment 1 described
above, switching is performed between display of all

the received distribution data and display of part of the received distribution data, so that a user wishing to view only high-priority distribution data can find necessary information speedily by not
5 having unnecessary distribution data displayed, and a user can also view all distribution data when wishing to do so, thus enabling distribution data to be displayed in an easy-to-view manner.

[0097]

10 (Embodiment 5)

FIG.21 is a block diagram showing the configuration of a terminal apparatus 2100 according to Embodiment 5 of the present invention.

[0098]

15 In terminal apparatus 2100 according to Embodiment 5, as shown in FIG.22, a channel selection section 2101 is added to the configuration of terminal apparatus 100 according to Embodiment 1 shown in FIG.1. Parts in FIG.21 constituting the
20 same configuration elements as in FIG.1 are assigned the same codes as in FIG.1, and descriptions thereof are omitted.

[0099]

Cell ID extraction section 104 extracts the
25 cell ID of the own cell, in which terminal apparatus 2100 is currently performing communication, from control information input from control data

receiving section 103, and outputs cell ID information--that is, information as to the extracted cell ID--to data sort section 106 and channel selection section 2101.

5 [0100]

Data receiving section 105 extracts distribution data from a received signal input from radio receiving section 102, and outputs this data to data sort section 106. The distribution data
10 extracted by data receiving section 105 is program selection menu information for selecting a broadcast program and data of broadcast programs. Program selection menu information includes channel information--that is, information on channels on
15 which broadcast program data is distributed--and cell ID information, and program guide information is composed of a plurality of program selection menus. Data of each broadcast program is received as a received signal of a different channel for each
20 broadcast program.

[0101]

Data sort section 106 compares the cell ID contained in each program selection menu of program guide information input from data receiving section
25 105 with the cell ID input from cell ID extraction section 104. Then, based on the result of the comparison, data sort section 106 arranges the

program selection menus within the program guide information input from data receiving section 105. Data sort section 106 then outputs program guide information in which the program selection menus have been arranged, and data of each broadcast program, to channel selection section 2101. Specifically, whether or not there is a program selection menu containing the cell ID of the own cell in which communication is currently being performed is determined, the difference between the cell ID contained in each program selection menu and the cell ID of the own cell is found, the found difference is compared with a threshold value, the priority of each program selection menu is determined, and program selection menus are arranged and output to channel selection section 2101 together with the data of each broadcast program. When only program selection menus containing the cell ID of the own cell are arranged, threshold value information is not necessary.

[0102]

Channel selection section 2101 selects a channel based on program guide information input from data sort section 106 and cell ID information input from cell ID extraction section 104. Specifically, channel selection section 2101 selects a channel of channel information contained

in a program selection menu containing information of the cell ID of the own cell. Then channel selection section 2101 outputs information as to the selected channel and program guide information
5 input from data sort section 106 to data format section 107.

[0103]

Display section 108 displays program guide information input from data format section 107.
10 Furthermore, display section 108 displays data of a broadcast program distributed using the selected channel together with the program guide information, according to information on the channel selected by channel selection section 2101 input from data
15 format section

[0104]

The operation of terminal apparatus 2100 that receives distribution data will now be described using FIG.22 and FIG.23. FIG.22 is a drawing
20 showing distribution data displayed on terminal apparatus 2100, and FIG.23 is a drawing showing program guide information of distribution data received by terminal apparatus 2100.

[0105]

25 Program guide information comprises, for example, news information #2201 and restaurant information #2202, as shown in FIG.22. In news

information #2201, '0x0D' cell ID information
#2203a and 'CH="001"' channel information #2204a
are included in the 'Tokyo Gakuen gets through to
Koshien' program selection menu information in the
5 first line, '0x0D' cell ID information #2203b and
'CH="001"' channel information #2204b are included
in the 'Interview with Tokyo Governor' program
selection menu information in the second line,
'0x0A', '0x0B', and '0x0C' cell ID information
10 #2203c and 'CH="002"' channel information #2204c
are included in the 'Yokohama Gakuin gets through
to Koshien' program selection menu information in
the third line, '0x0A', '0x0B', and '0x0C' cell ID
information #2203d and 'CH="002"' channel
15 information #2204d are included in the 'Interview
with Prefectural Governor' program selection menu
information in the fourth line, and all cell ID
information #2203e indicated by '*' and 'CH="000"'
channel information #2204e are included in the
20 'Lower House Vote News Flash' program selection menu
information in the fifth line.

[0106]

Data sort section 106 arranges the
distribution data based on the respective
25 priorities. For example, if terminal apparatus
2100 performing communication in Yokohama area cell
#311 with a cell ID of '0x0B' receives news

information #2201 in FIG.22, data sort section 106 selects 'Yokohama Gakuin gets through to Koshien' and 'Interview with Prefectural Governor' program selection menu information containing the '0x0B' cell ID, makes the priority of this information 'high', and places this information at the top.
[0107]

Next, data sort section 106 takes 'Lower House Vote News Flash' program selection menu information containing all cell IDs as having the next highest priority, and places this next after the 'Yokohama Gakuin gets through to Koshien' and 'Interview with Prefectural Governor' program selection menu information.

[0108]

Then, by performing subtraction between cell IDs, data sort section 106 places 'Tokyo Gakuen gets through to Koshien' and 'Interview with Tokyo Governor' program selection menu information containing cell ID '0x0D' of the Tokyo area cell farthest from a Yokohama area cell in news information #2201 next after 'Lower House Vote News Flash' program selection menu information.

[0109]

Furthermore, channel selection section 2101 selects channel 002 that broadcasts the 'Yokohama Gakuen gets through to Koshien' or 'Interview with

Prefectural Governor' containing the '0x0B' cell ID.

[0110]

Next, as shown in FIG.23, in the program guide
5 information displayed in lower screen area #2301,
display section 108 displays Yokohama area cell
'Yokohama Gakuin gets through to Koshien' program
selection menu information #2303a at the top,
displays 'Interview with Prefectural Governor'
10 program selection menu information #2303b next
after program selection menu information #2303a,
displays 'Lower House Vote News Flash' program
selection menu information #2303c common to all
cells next after program selection menu information
15 #2303b, displays Tokyo area cell 'Tokyo Gakuen gets
through to Koshien' program selection menu
information #2303d next after program selection
menu information #2303c, and displays 'Interview
with Tokyo Governor' program selection menu
20 information #2303e next after program selection
menu information #2303d. Furthermore, as shown in
FIG.23, in upper screen area #2302, display section
108 displays broadcast program data 'Yokohama
Gakuin gets through to Koshien' distributed using
25 the channel selected by channel selection section
2101.

[0111]

The user of terminal apparatus 2100 then selects (clicks) an underlined part of the program selection menu information displayed in lower screen area #2301, and the selected broad cast
5 program data is displayed in screen upper area #2302. The processing performed for restaurant information #2202 is similar to that for news information #2201 described above, and therefore, a description thereof is omitted here.

10 [0112]

Thus, according to Embodiment 5, in addition to providing the effects of Embodiment 1 described above, a channel is selected from channel information contained in a program selection menu
15 that contains the cell ID of the own cell, and program guide information display and display of broadcast programs distributed using the selected channel are performed simultaneously, enabling a state in which no broadcast program is displayed to
20 be eliminated during the period until the user selects a broadcast program. Also, according to Embodiment 5, a broadcast program distributed in a channel of channel information contained in program selection menu information containing the cell ID
25 of the own cell is displayed first, enabling the user to view the most necessary broadcast program speedily.

[0113]

In Embodiment 5, it has been assumed that a channel is selected from channel information contained in a program selection menu containing the
5 cell ID of the own cell, but this is by no means limiting, and a channel of channel information contained in a program selection menu containing the cell ID of a cell other than the own cell may also be selected and arranged to be broadcast first.
10 Also, it is possible for Embodiment 5 to be applied to Embodiment 2 through Embodiment 4.

[0114]

In above-described Embodiment 1 through Embodiment 5, it has been assumed that distribution
15 data is arranged using cell IDs or network area IDs, but this is by no means limiting, and distribution data can be arranged using any location information, such as a zip code or the like. In above-described Embodiment 1 through Embodiment 5, it has been
20 assumed that distribution data is displayed after being converted to HTML format, but this is by no means limiting, and it is possible for distribution data to be converted to any displayable format. In above-described Embodiment 1 through Embodiment 5,
25 it has been assumed that latitude and longitude are used as location information associated with distribution data, but this is by no means limiting,

and it is possible to use any location information, such as a zip code or the like. In above-described Embodiment 1 through Embodiment 5, distribution data may be transmitted using FLUTE (File Delivery over Unidirectional Transport), and cell information can be written by using or extending a field stipulated in FLUTE, for example. FLUTE is a file transfer method currently under discussion by the IETF, and is a suitable method for transmitting metadata. In above-described Embodiment 1 through Embodiment 5, distribution data may include layout information. Layout information is control information that specifies how content is to be laid out and displayed, and SMIL (Synchronized Multimedia Integration Language), for example, can be used for this purpose. SMIL is a layout description language recommended by W3C (The World Wide Web Consortium). A cell ID can be specified in an SMIL layout, enabling layout or display content linkage to be established.

[0115]

A terminal apparatus and received data display method of the present invention have an effect of enabling costs to be reduced and necessary information to be found speedily by editing distribution data in the terminal apparatus, and not editing distribution data on the distribution end,

and are suitable for displaying distributed data.

[BRIEF DESCRIPTION OF THE DRAWINGS]

[0116]

5 [FIG.1] A block diagram showing the configuration of a terminal apparatus according to Embodiment 1 of the present invention;

[FIG.2] A block diagram showing the configuration of a distribution server according to Embodiment 1 of the present invention;

10 [FIG.3] A schematic diagram showing a network;

[FIG.4] A drawing showing distribution data according to Embodiment 1 of the present invention;

15 [FIG.5] A flowchart showing the operation of a terminal apparatus according to Embodiment 1 of the present invention;

[FIG.6] A drawing showing distribution data according to Embodiment 1 of the present invention;

20 [FIG.7] A drawing showing distribution data according to Embodiment 1 of the present invention;

[FIG.8] A drawing showing distribution data according to Embodiment 1 of the present invention;

25 [FIG.9] A drawing showing a display of the display section of a terminal apparatus according to Embodiment 1 of the present invention;

[FIG.10] A drawing showing a display of the display section of a terminal apparatus according

to Embodiment 1 of the present invention;

[FIG.11] A block diagram showing the configuration of a terminal apparatus according to Embodiment 2 of the present invention;

5 [FIG.12] A drawing showing distribution data according to Embodiment 2 of the present invention;

[FIG.13] A drawing showing a display of the display section of a terminal apparatus according to Embodiment 2 of the present invention;

10 [FIG.14] A drawing showing a display of the display section of a terminal apparatus according to Embodiment 2 of the present invention;

[FIG.15] A block diagram showing the configuration of a terminal apparatus according to Embodiment 3 of the present invention;

[FIG.16] A flowchart showing the operation of a terminal apparatus according to Embodiment 3 of the present invention;

[FIG.17] A drawing showing data sort information according to Embodiment 3 of the present invention;

[FIG.18] A block diagram showing the configuration of a terminal apparatus according to Embodiment 4 of the present invention;

25 [FIG.19] A drawing showing a display of the display section of a terminal apparatus according to Embodiment 4 of the present invention;

[FIG.20] A drawing showing a display of the display section of a terminal apparatus according to Embodiment 4 of the present invention;

[FIG.21] A block diagram showing the configuration of a terminal apparatus according to Embodiment 5 of the present invention;

[FIG.22] A drawing showing distribution data according to Embodiment 5 of the present invention;

[FIG.23] A drawing showing a display of the display section of a terminal apparatus according to Embodiment 5 of the present invention; and

[FIG.24] A block diagram showing the configuration of a conventional distribution server.

[Description of the Symbols]

[0117]

100 Terminal Apparatus

102 Radio Receiving Section

103 Control Data Receiving Section

104 Cell ID Extraction Section

105 Data Receiving Section

106 Data Sort Section

107 Data Format Section

108 Display Section

[NAME OF DOCUMENT] ABSTRACT

[Abstract]

[Object]

Distributed data is not edited at a
5 distributing end but is edited in a terminal
apparatus, thereby making it possible to reduce the
cost and to quickly retrieve necessary information.

[Overcoming Means]

A cell ID extracting part 104 extracts all the
10 cell IDs that can be currently received. A data
receiving part 105 extracts distributed data. A
data sorting part 106 compares the cell ID related
to the distributed data with the cell IDs that can
be currently received, and adds priorities to the
15 distributed data in such a manner that a "high"
priority is given to the distributed data related
to the same cell ID as the own cell, while the lower
priorities being given to the distributed data
related to the cell IDs of other cells that are
20 farther from the own cell. A display part 108
sequentially displays the distributed data in
decreasing order of the priority.

[Selected Drawing] FIG. 1

FIG.1

THRESHOLD VALUE INFORMATION

102 RADIO RECEIVING SECTION

103 CONTROL DATA RECEIVING SECTION

5 104 CELL ID EXTRACTION SECTION

105 DATA RECEIVING SECTION

106 DATA SORT SECTION

107 DATA FORMAT SECTION

108 DISPLAY SECTION

10

FIG.2

CONTENT INFORMATION

201 CONTENT READING SECTION

202 GEOGRAPHICAL INFORMATION STORAGE SECTION

15 203 CELL ID PROVIDING SECTION

204 TRANSMITTING SECTION

DISTRIBUTION DATA

FIG.4

20 #401

... TOKYO GAKUEN GETS THROUGH TO KOSHIE

INTERVIEW WITH TOKYO GOVERNOR

YOKOHAMA GAKUIN GETS THROUGH TO KOSHIE

INTERVIEW WITH PREFECTURAL GOVERNOR

25 LOWER HOUSE VOTE NEWS FLASH

#402

... ITALIAN RESTAURANT "GRAZIE" (ODAIBA)

FRENCH RESTAURANT "BONJOUR" (SHINAGAWA)
BUCKWHEAT NOODLE RESTAURANT "KAWASAKI SOBA"
(KAWASAKI)
CHINESE RESTAURANT "HORAI" (KANNAI, YOKOHAMA)
5 JAPANESE CONFECTIONERY "DAIBUTU" (KAMAKURA)

FIG. 5

START

ST501 READ ONE DISTRIBUTION DATA ITEM

10 ST502 CURRENT CELL ID ACQUISITION

ST503 SAME CELL ID?

ST504 SET PRIORITY TO "HIGH"

ST505 CELL ID DIFFERENCE \leq THRESHOLD VALUE?

ST506 SET PRIORITY TO "MEDIUM"

15 ST507 SET PRIORITY TO "LOW"

ST508 ARRANGE DISTRIBUTION DATA

ST509 DISPLAY RECEIVED DATA

ST510 END OF RECEPTION PROCESSING?

END

20 FIG. 6

#401

... ITALIAN RESTAURANT "GRAZIE" (ODAIBA)

FRENCH RESTAURANT "BONJOUR" (SHINAGAWA)

BUCKWHEAT NOODLE RESTAURANT "KAWASAKI SOBA"

25 (KAWASAKI)

CHINESE RESTAURANT "HORAI" (KANNAI, YOKOHAMA)

JAPANESE CONFECTIONERY "DAIBUTU" (KAMAKURA)

FIG. 7

CHINESE RESTAURANT "HORAI" (KANNAI, YOKOHAMA)
JAPANESE CONFECTIONERY "DAIBUTU" (KAMAKURA)
5 BUCKWHEAT NOODLE RESTAURANT "KAWASAKI SOBA"
(KAWASAKI)
.. FRENCH RESTAURANT "BONJOUR" (SHINAGAWA)
. ITALIAN RESTAURANT "GRAZIE" (ODAIBA)

10 FIG. 8

CHINESE RESTAURANT "HORAI" (KANNAI, YOKOHAMA)
JAPANESE CONFECTIONERY "DAIBUTU" (KAMAKURA)
BUCKWHEAT NOODLE RESTAURANT "KAWASAKI SOBA"
(KAWASAKI)
15 .. FRENCH RESTAURANT "BONJOUR" (SHINAGAWA)
. ITALIAN RESTAURANT "GRAZIE" (ODAIBA)

FIG. 9

INFORMATION SERVICE
20 #901
[NEWS FLASHES]
LOWER HOUSE VOTE NEWS FLASH
YOKOHAMA GAKUIN GETS THROUGH TO KOSHIE
INTERVIEW WITH PREFECTURAL GOVERNOR
25 TOKYO GAKUEN GETS THROUGH TO KOSHIE
INTERVIEW WITH TOKYO GOVERNOR
#902

[RECOMMENDED RESTAURANTS]

CHINESE RESTAURANT "HORAI" (YOKOHAMA)

JAPANESE CONFECTIONERY "DAIBUTU" (KAMAKURA)

BUCKWHEAT NOODLE RESTAURANT "KAWASAKI SOBA"

5 (KAWASAKI)

FRENCH RESTAURANT "BONJOUR" (SHINAGAWA)

ITALIAN RESTAURANT "GRAZIE" (ODAIBA)

FIG.10

10 INFORMATION SERVICE

#1001

[NEWS FLASHES]

LOWER HOUSE VOTE NEWS FLASH

TOKYO GAKUEN GETS THROUGH TO KOSHIE

15 INTERVIEW WITH TOKYO GOVERNOR

YOKOHAMA GAKUIN GETS THROUGH TO KOSHIE

INTERVIEW WITH PREFECTURAL GOVERNOR

#1002

[RECOMMENDED RESTAURANTS]

20 FRENCH RESTAURANT "BONJOUR" (SHINAGAWA)

ITALIAN RESTAURANT "GRAZIE" (ODAIBA)

BUCKWHEAT NOODLE RESTAURANT "KAWASAKI SOBA"

(KAWASAKI)

CHINESE RESTAURANT "HORAI" (YOKOHAMA)

25

FIG.11

THRESHOLD VALUE INFORMATION

LOCATION MEASUREMENT INFORMATION

102 RADIO RECEIVING SECTION

103 CONTROL DATA RECEIVING SECTION

104 CELL ID EXTRACTION SECTION

5 105 DATA RECEIVING SECTION

1101 DATA SORT SECTION

107 DATA FORMAT SECTION

108 DISPLAY SECTION

10 FIG.12

#1201

... TOKYO GAKUEN GETS THROUGH TO KOSHIE

INTERVIEW WITH TOKYO GOVERNOR

YOKOHAMA GAKUIN GETS THROUGH TO KOSHIE

15 INTERVIEW WITH PREFECTURAL GOVERNOR

LOWER HOUSE VOTE NEWS FLASH

#1202

... ITALIAN RESTAURANT "GRAZIE" (ODAIBA)

FRENCH RESTAURANT "BONJOUR" (SHINAGAWA)

20 BUCKWHEAT NOODLE RESTAURANT "KAWASAKI SOBA"

(KAWASAKI)

CHINESE RESTAURANT "HORAI" (KANNAI, YOKOHAMA)

NOODLE RESTAURANT "TENTEN" (SHIN-YOKOHAMA,
YOKOHAMA)25 ITALIAN RESTAURANT "MASTROIANNI" (YOKOHAMA
STN., YOKOHAMA)

JAPANESE CONFECTIONERY "DAIBUTU" (KAMAKURA)

FIG.13

INFORMATION SERVICE

#1301

5 [NEWS FLASHES]

LOWER HOUSE VOTE NEWS FLASH

YOKOHAMA GAKUIN GETS THROUGH TO KOSHIE

INTERVIEW WITH PREFECTURAL GOVERNOR

TOKYO GAKUEN GETS THROUGH TO KOSHIE

10 INTERVIEW WITH TOKYO GOVERNOR

#1302

[RECOMMENDED RESTAURANTS]

ITALIAN "MASTROIANNI" (YOKOHAMA STN.)

NOODLES "TENTEN" (SHIN-YOKOHAMA)

15 CHINESE "HORAI" (KANNAI)

JAPANESE CONFECTIONERY "DAIBUTU" (KAMAKURA)

BUCKWHEAT NOODLES "KAWASAKI SOBA" (KAWASAKI)

FIG.14

20 INFORMATION SERVICE

#1401

[NEWS FLASHES]

LOWER HOUSE VOTE NEWS FLASH

YOKOHAMA GAKUIN GETS THROUGH TO KOSHIE

25 INTERVIEW WITH PREFECTURAL GOVERNOR

TOKYO GAKUEN GETS THROUGH TO KOSHIE

INTERVIEW WITH TOKYO GOVERNOR

#1402

[RECOMMENDED RESTAURANTS]

CHINESE "HORAI" (KANNAI)

ITALIAN "MASTROIANNI" (YOKOHAMA STN.)

5 NOODLES "TENTEN" (SHIN-YOKOHAMA)

JAPANESE CONFECTIONERY "DAIBUTU" (KAMAKURA)

BUCKWHEAT NOODLES "KAWASAKI SOBA" (KAWASAKI)

FIG.15

10 THRESHOLD VALUE INFORMATION

102 RADIO RECEIVING SECTION

103 CONTROL DATA RECEIVING SECTION

1501 TRANSMISSION STATUS MONITORING SECTION

1502 CELL ID EXTRACTION SECTION

15 1503 CELL ID STORAGE SECTION

105 DATA RECEIVING SECTION

1504 DATA SORT SECTION

107 DATA FORMAT SECTION

108 DISPLAY SECTION

20

FIG.16

START

ST1601 READ ONE DISTRIBUTION DATA ITEM

ST1602 CELL ID EXTRACTION, TRANSMISSION STATUS

25 MONITORING

ST1603 CELL ID CORRESPONDENCE TABLE UPDATING

ST1604 ARRANGE DISTRIBUTION DATA

ST1605 DISPLAY DISTRIBUTION DATA
ST1606 END OF RECEPTION PROCESSING?
END

5 FIG.17

CELL ID RECEIVED SIGNAL STRENGTH

FIG.18

THRESHOLD VALUE INFORMATION

10 102 RADIO RECEIVING SECTION

103 CONTROL DATA RECEIVING SECTION

104 CELL ID EXTRACTION SECTION

105 DATA RECEIVING SECTION

106 DATA SORT SECTION

15 107 DATA FORMAT SECTION

108 DISPLAY SECTION

1801 DISPLAY SWITCHING SECTION

FIG.19

20 INFORMATION SERVICE

[RECOMMENDED RESTAURANTS]

CHINESE "HORAI" (KANNAI)

ITALIAN "MASTROIANNI" (YOKOHAMA STN.)

NOODLES "TENTEN" (SHIN-YOKOHAMA)

25 JAPANESE CONFECTIONERY "DAIBUTU" (KAMAKURA)

[MORE...]

FIG. 20

INFORMATION SERVICE

[RECOMMENDED RESTAURANTS]

CHINESE "HORAI" (KANNAI)

5 ITALIAN "MASTROIANNI" (YOKOHAMA STN.)

NOODLES "TENTEN" (SHIN-YOKOHAMA)

JAPANESE CONFECTIONERY "DAIBUTU" (KAMAKURA)

BUCKWHEAT NOODLES "KAWASAKI SOBA" (KAWASAKI)

FRENCH "BONJOUR" (SHINAGAWA)

10 ITALIAN "GRAZIE" (ODAIBA)

FIG. 21

THRESHOLD VALUE INFORMATION

102 RADIO RECEIVING SECTION

15 103 CONTROL DATA RECEIVING SECTION

104 CELL ID EXTRACTION SECTION

105 DATA RECEIVING SECTION

106 DATA SORT SECTION

2101 CHANNEL SELECTION SECTION

20 107 DATA FORMAT SECTION

108 DISPLAY SECTION

FIG. 22

#2201

25 ... TOKYO GAKUEN GETS THROUGH TO KOSHIE

INTERVIEW WITH TOKYO GOVERNOR

YOKOHAMA GAKUIN GETS THROUGH TO KOSHIE

INTERVIEW WITH PREFECTURAL GOVERNOR
LOWER HOUSE VOTE NEWS FLASH

#2202

... ITALIAN RESTAURANT "GRAZIE" (ODAIBA)

5 FRENCH RESTAURANT "BONJOUR" (SHINAGAWA)

BUCKWHEAT NOODLE RESTAURANT "KAWASAKI SOBA"
(KAWASAKI)

CHINESE RESTAURANT "HORAI" (KANNAI, YOKOHAMA)

JAPANESE CONFECTIONERY "DAIBUTU" (KAMAKURA)

10

FIG.23

#2302

CONGRATULATIONS! YOKOHAMA GAKUIN GETS THROUGH TO
KOSHIEIN

15 #2301

[NEWS FLASHES]

YOKOHAMA GAKUIN GETS THROUGH TO KOSHIEIN CH002

INTERVIEW WITH PREFECTURAL GOVERNOR CH002

LOWER HOUSE VOTE NEWS FLASH CH000

20 TOKYO GAKUEN GETS THROUGH TO KOSHIEIN CH001

INTERVIEW WITH TOKYO GOVERNOR CH001

FIG.24

11 TRANSMITTING/RECEIVING SECTION

25 12 CONTROL SECTION

13 STORAGE SECTION

14 LOCATION ACQUISITION SECTION

15 LOCATION MEASUREMENT APPARATUS

17 MOBILE TERMINAL

5

10